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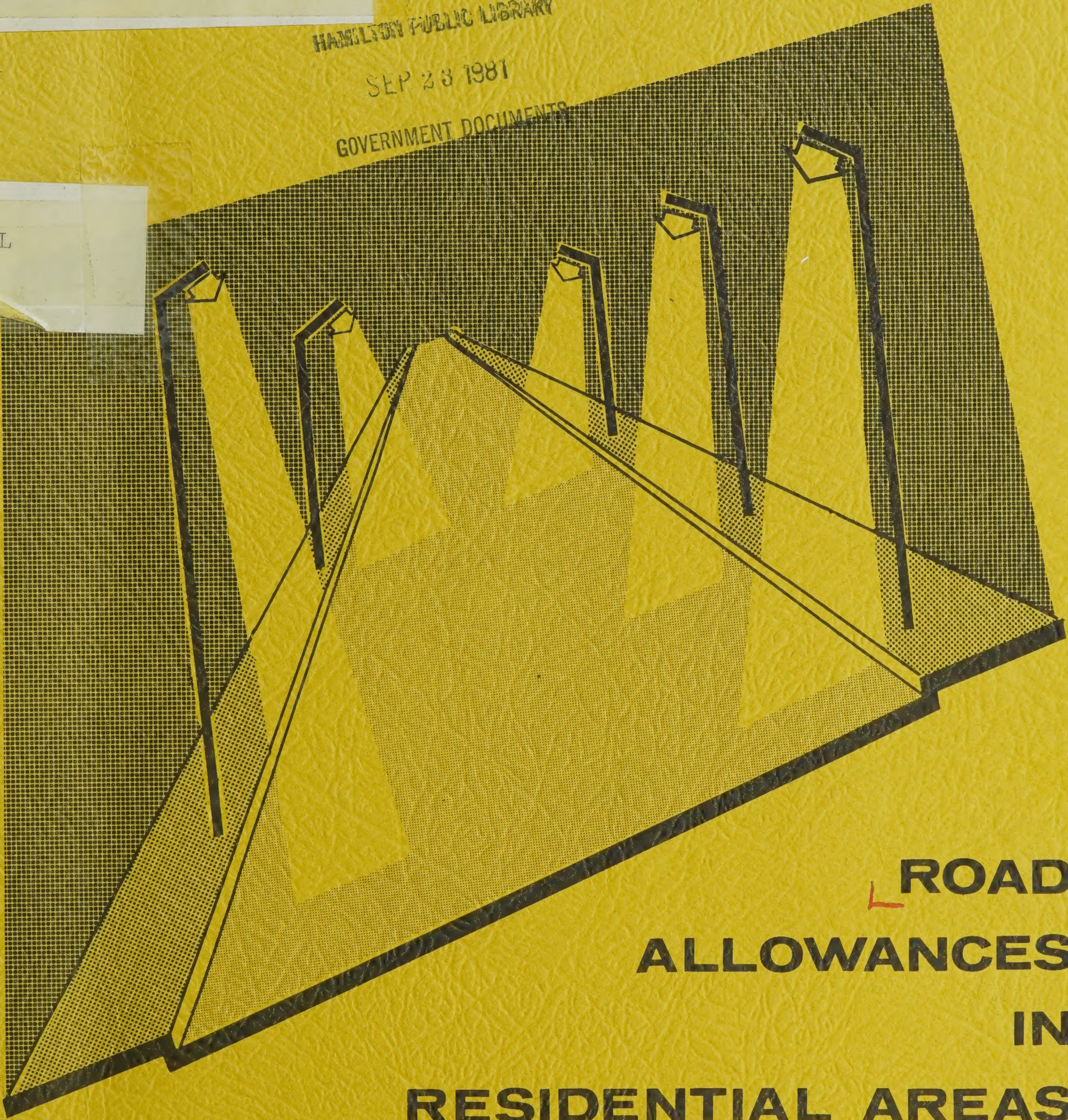

ROAD ALLOWANCES IN RESIDENTIAL AREAS

INISTRATIVE COMMITTEE ■ CORPORATION OF THE CITY OF HAMILTON

April 1974

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CITY CLERK

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THE CORPORATION OF THE CITY OF HAMILTON
OFFICE OF THE CITY CLERK

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May 14, 1974

Mr. J. R. Jones,
Secretary,
Board of Control.

Re: Road allowances in Residential Areas

The attached report is the result of a request from the City's Planning and Development Committee to the Board of Control that the City's Administrative Committee "...review the basis for the standard road width of sixty-six (66) feet, and also as to the feasibility of a reduction in this width in appropriate circumstances so as to help alleviate the high cost of housing development."

The findings of this study have resulted in the following recommendations pertaining to residential street road allowances in new subdivisions which can be implemented immediately:-

1. The road allowance at the end of cul-de-sac streets be reduced from a Ninety (90) foot diameter to an Eighty (80) foot diameter. (Providing underground services (no sidewalks)
2. The road allowance on all "Local" streets (see Fig. 3) be reduced from Sixty-six (66) feet to Sixty (60) feet.
3. As a result of the above reductions in road allowances, the following additional reductions in roadway standards for "Local" streets are recommended:-
    (a) Pavement widths on all cul-de-sac streets be reduced from Twenty-eight (28) feet to Twenty-four (24) feet.
    (b) Pavement widths on all other "Local" streets be reduced from Twenty-eight (28) feet to Twenty-six (26) feet.
    (c) Sidewalks be eliminated from all "Local" streets.

Since the costs associated with road allowances represent only a small portion of the total housing development costs, the report identifies the major elements of housing development cost and additional strategies for reducing these costs (see Table 2).

An in-depth study of the feasibility of these additional strategies should be undertaken by the City's recently established Housing Task Force.

K. E. Avery, Secretary,
Administrative Committee.

KEA/cg
Attch.

[redacted]

ROAD ALLOWANCES IN RESIDENTIAL AREAS

(A Review of Existing Standards and Feasibility for Reduction)

Prepared by

The Administrative Committee

Corporation of the City of Hamilton

May, 1974

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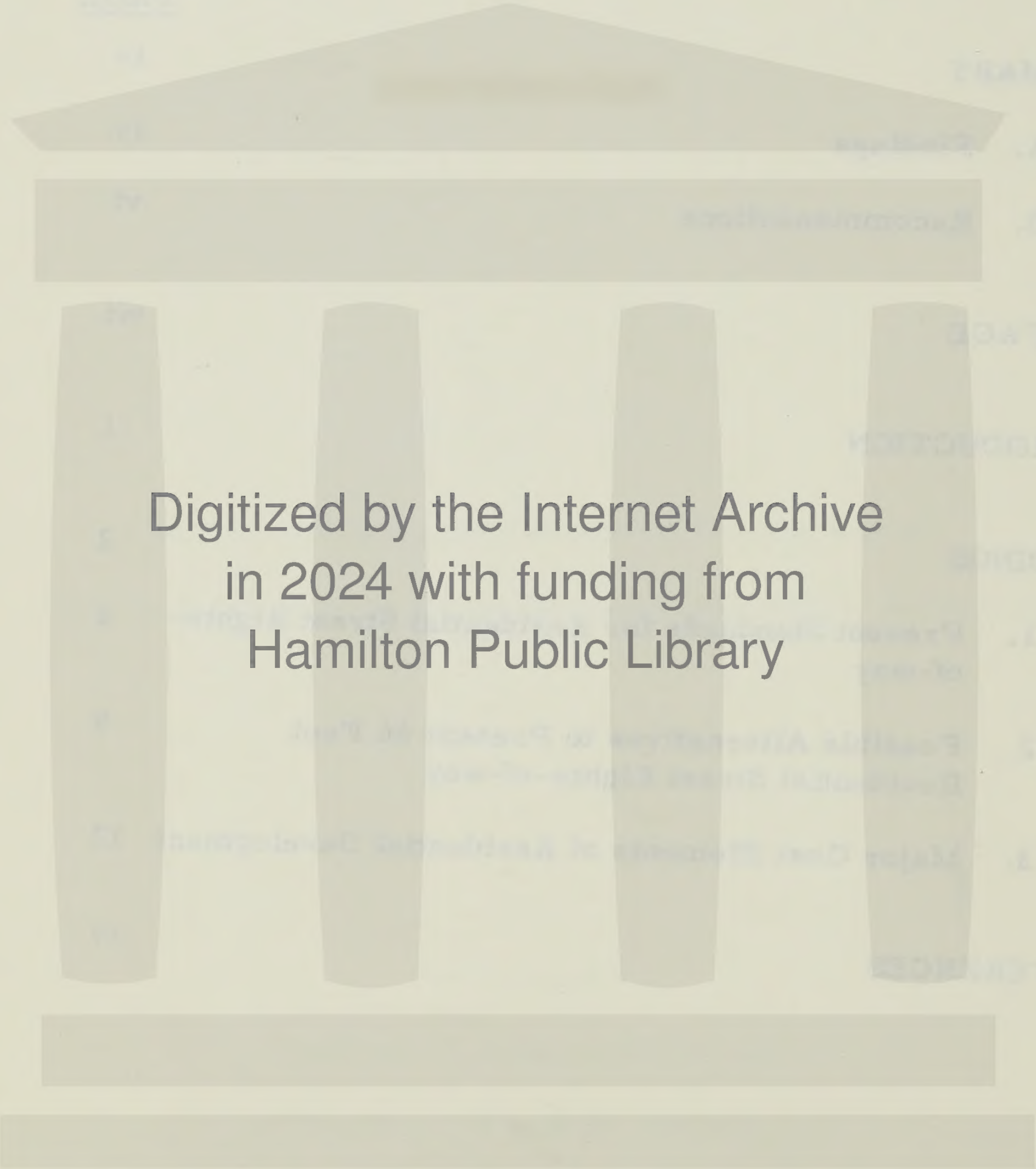

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SUMMARY

The accompanying report, a review of the City of Hamilton's existing standards for residential street rights-of-way, has resulted in the following Findings and Recommendations:

A. FINDINGS

(1) There are two feasible alternatives to the existing 66 feet residential street rights-of-way standard:

(a) Alternative #1: Road allowance remains as in existing standard except in cul-de-sacs where it is reduced from 90 feet diameter to 80 feet diameter. Pavement width is also reduced from 28 feet to 24 feet on local cul-de-sac streets. Sidewalks are eliminated on local cul-de-sac streets. Barrier curbs on local cul-de-sac streets are replaced by mountable curbs. Pavement structure is reduced from depth of 6 inches to depth of 3 inches on all residential streets. (The Engineering Department should confirm the feasibility of this reduced pavement depth with respect to strength and maintenance requirements.)

$10. 50 - $16. 50 for cul-de-sac streets[1], and

$ 3. 00 for all other streets.

In addition to the above costs reduction there would be a reduction in 'overhead' costs amounting to approximately 15% of the 'construction' costs.

[1] $10. 50 for lots along the street
$16. 50 for lots within the cul-de-sac .

(b) Alternative #2: Road allowance on 'collector' and 'minor collectors' (see Fig. 3) remains in existing standards. Road allowance in cul-de-sacs is reduced from 90 feet to 80 feet, and on all other local streets the road allowance is reduced from 66 feet to 60 feet. Pavement width on 'local' cul-de-sac streets is reduced from 28 feet to 24 feet, and on all other 'local' streets, is reduced from 28 feet to 26 feet. Sidewalks and barrier curbs are provided on all 'collector' and 'minor collector' streets only -- on local streets there are mountable curbs with no sidewalks.

The estimated 'construction' cost and land cost reduction (1974 dollars) per foot of lot frontage for Alternative #2 is as follows:

$10.50 - $16.50 for cul-de-sac streets,[2]

$12.50 for all other 'local' streets, and

$ 3.00 for 'minor collectors'.

In addition to the above cost reductions there would be a reduction in 'overhead' costs amounting to approximately 15% of the 'construction' costs.

(2) Since costs associated with road allowances and road construction represent only 2 1/2% of the total costs of residential housing (see Table 2), reductions in road allowance and road construction standards do not offer potential for significant reductions in housing costs.

(3) There are four major cost elements which contribute to the total cost of housing: Servicing Costs, Administrative and Financing Costs, Land Cost, Dwelling Structure Costs. To significantly reduce housing costs, a comprehensive approach aimed at each of these four elements is needed.

[2] $10.50 for lots along the street
$16.50 for lots within the cul-de-sac

B. RECOMMENDATIONS

(1) The residential street right-of-way and construction standards described in Alternative #2 above, (and subject to the evaluation of the proposed 3 inches pavement depth by the City Engineering Department) be adopted as the City's standard for new subdivisions.

(2) An in-depth study of the feasibility of the comprehensive strategies for reducing housing development costs (described in Table 2 of this report) be undertaken by the City's recently established Housing Task Force with the objective of developing an action program for reducing housing development costs which encompasses all the major housing development cost elements.

PREFACE

This report has been prepared by a subcommittee of the Administrative Committee of the Corporation of the City of Hamilton. The report is the result of a request from the City's Planning and Development Committee to the Board of Control that the City's Administrative Committee "... review the basis for the standard road width of 66 feet, and also as to the feasibility of a reduction in this width in appropriate circumstances so as to help alleviate the high cost of housing development." (1)

The subcommittee, appointed by the Administrative Committee to develop the report, was composed of the following:

Mr. Victor Abraham - City Planning Department
Mr. John Cavarzan - City Solicitor's Department
Mrs. Eva Havelka - City Engineering Department
Mr. Gerald McCarthy - City Traffic Department

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(1) Letter dated March 5, 1974 to: Mr. J. R. Jones, Secretary, Board of Control, from: Mr. J. W. West, Planning Control Officer, City Planning Department, Hamilton.

INTRODUCTION

Housing costs throughout Southern Ontario have been experiencing a rapid increase in the past few years. Municipalities, concerned about the scarcity of housing available for purchase by low-to-middle income families, are looking for ways to reduce the development costs of housing.

In order to develop effective programs for reducing housing development costs, an understanding of the major elements of these costs is necessary.

Therefore, in addition to addressing itself to the request of the Planning and Development Committee, namely to study the feasibility of reducing the presently required 66 feet road allowance, the subcommittee has broadened the scope of its report to include a discussion of the major elements of housing development costs in order to identify those elements which have significant potential for cost reduction.

The report will, therefore, not only indicate the extent to which housing development costs can be reduced as a result of reductions in the present 66 feet road allowance policy, but it will also identify other factors which have significant potential for reducing housing development costs.

FINDINGS

1. PRESENT STANDARDS FOR RESIDENTIAL STREET RIGHTS-OF-WAY

The City of Hamilton presently requires a minimum road allowance width of 50 feet for 'local' cul-de-sacs and 66 feet for remaining 'local' and 'minor collector' residential streets in all new subdivisions (see Figure 3). 'Collector' streets serving residential subdivisions are constructed on 86 feet road allowances (see Figure 3).

As can be seen from Figure 1 and Figure 2, the width of road allowance has to be adequate to facilitate location of all services required by the City of Hamilton, such as 28 feet wide pavement, 5 feet wide sidewalks on both sides of the pavement, street lighting, trees, storm sewers, sanitary sewers and watermains, as well as location of other utilities namely hydro, bell telephone and gas.

As indicated on Figure 2, the minimum width of road allowance requires location of storm and sanitary sewers and watermains within the pavement area. The road allowance width of 66 feet (Figure 1) allows location of watermain and other overhead and underground utilities, except where it must cross the road, outside the pavement. This results in lower maintenance costs and eliminating of any disturbance to traffic during utility maintenance operations.

The services within the road allowance are planned, designed, constructed and maintained for two years after the construction by the developer, at his own expense. All this work has to comply with City standards, policies and requirements. The total cost of this work is passed on to the home purchaser as a part of the overall house cost.

It is evident that in order to reduce the existing road allowance width of 66 feet, and to keep the location of watermain and other utilities outside the pavement, reductions will have to be made in one or a combination of these width related elements of the 'typical section', shown as Figure 1.

In addition to the question of the feasibility of reducing the existing road allowance standard, it is important to know how cost effective such a reduction will be. In other words, how significant will the cost reduction be and what will the level of service impacts of this cost reduction be. The following section presents two feasible alternatives to the 66 feet road allowance standard and discusses the estimated cost reductions resulting therefrom.

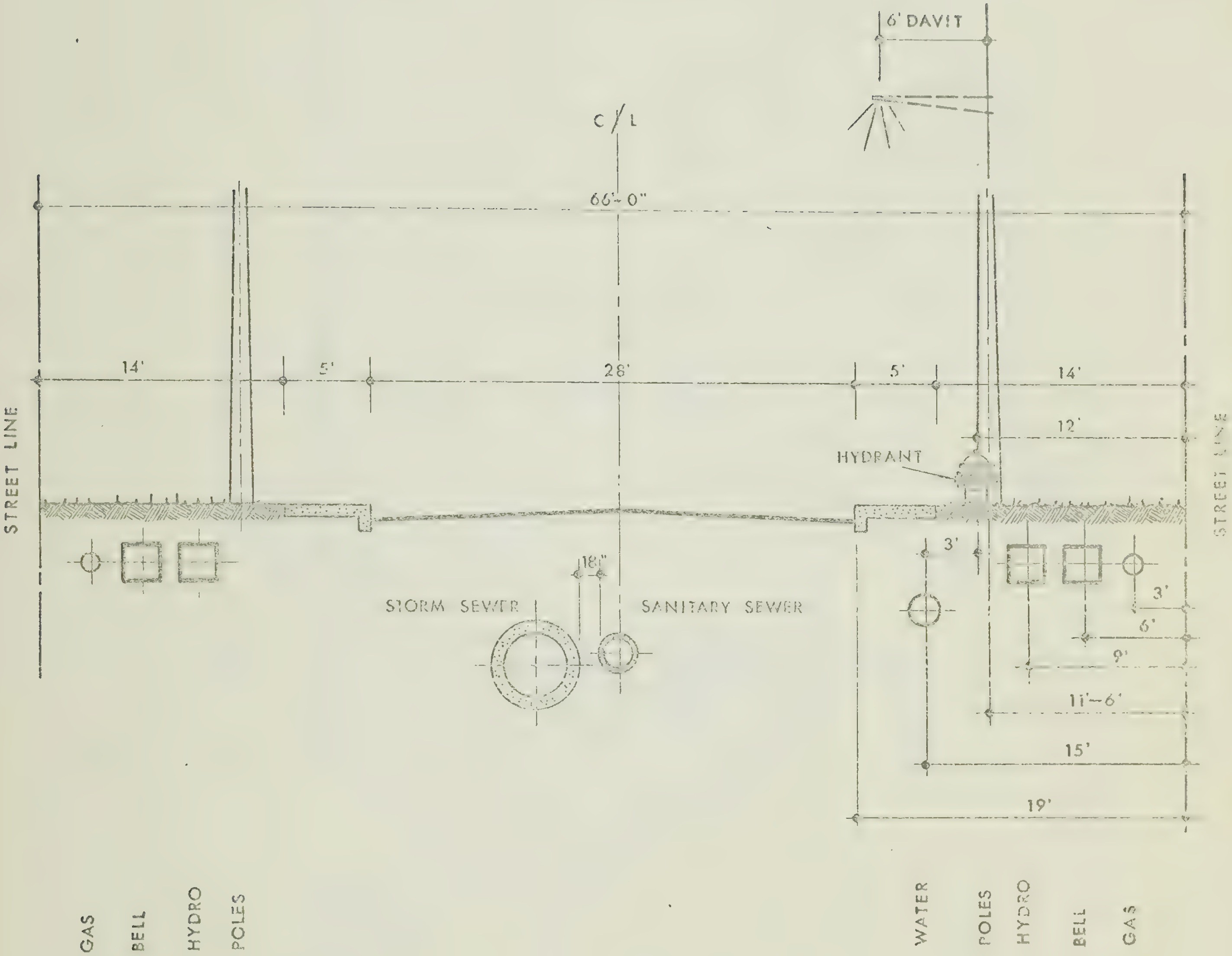


Fig.1

EXISTING RESIDENTIAL ROAD ALLOWANCE - SECTION 66'

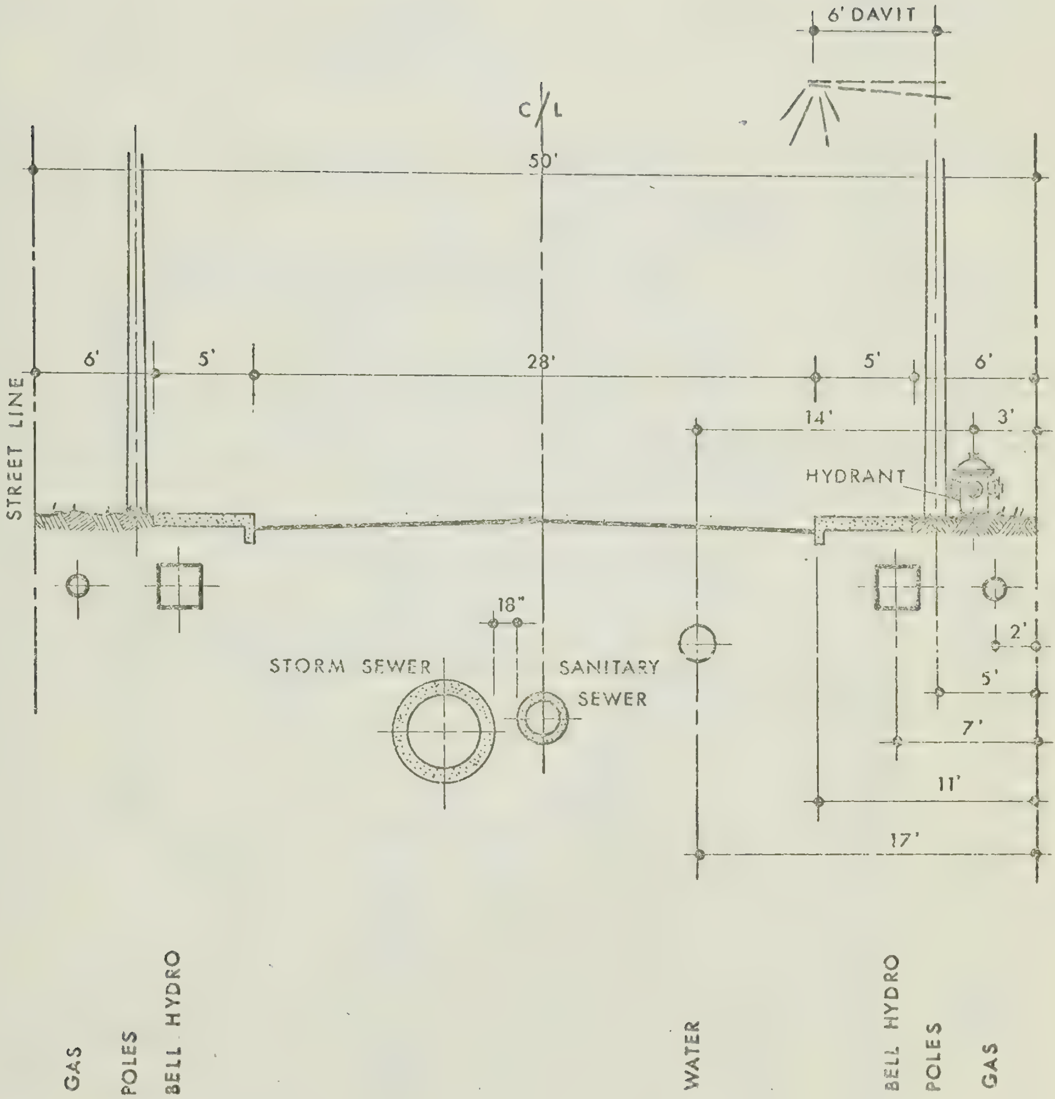
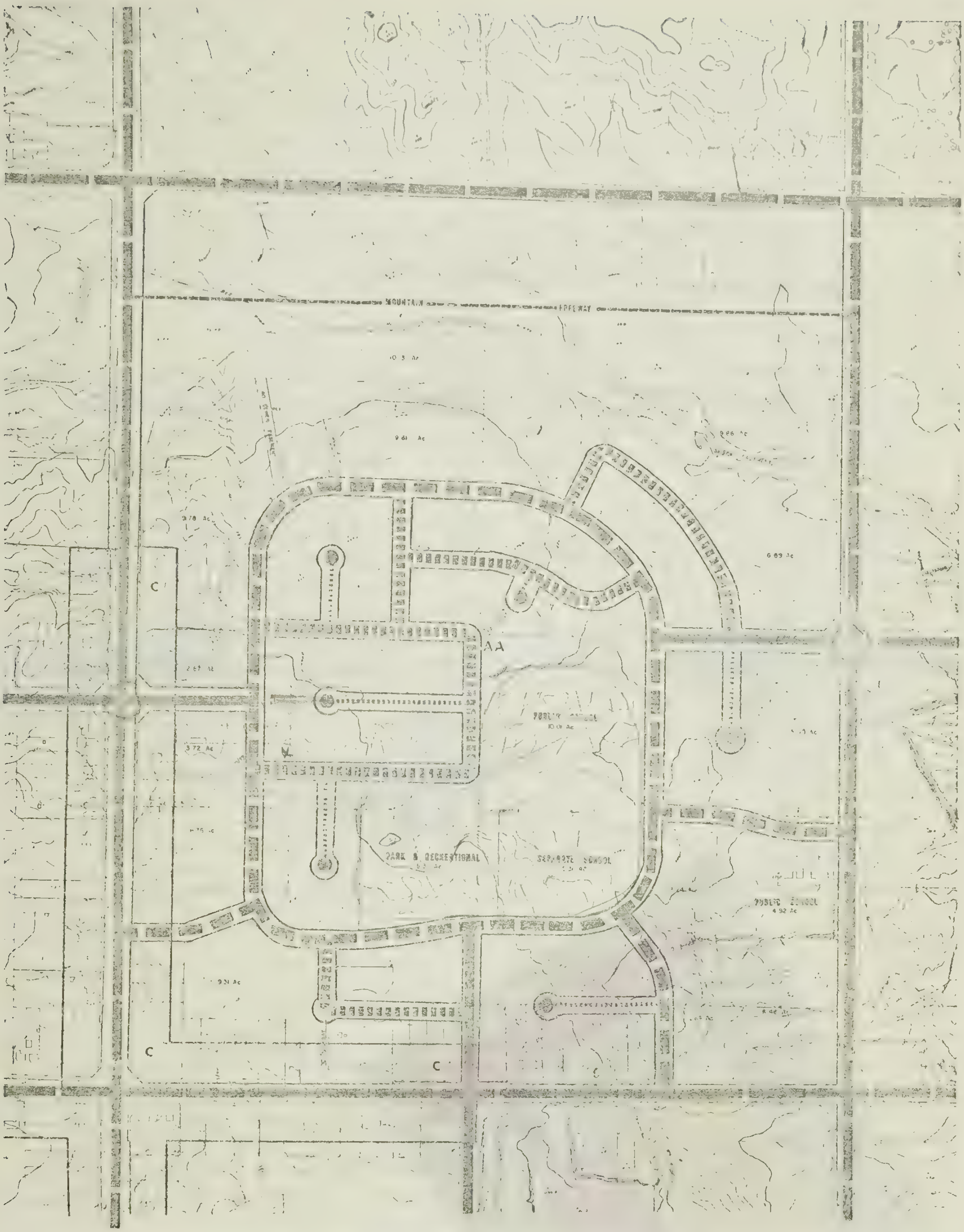


Fig.2

EXISTING RESIDENTIAL ROAD ALLOWANCE - SECTION 50'



LEGEND:

		EXISTING R.O.W.
▬ ▬ ▬	ARTERIAL STREETS	86' – 120' R.O.W.
▬▬▬	COLLECTOR STS.	86' R.O.W.
▬ ▬ ▬	MINOR COLLECTOR STS.	66' R.O.W.
▮▮▮▮▮▮	LOCAL STREETS.	66' R.O.W.
┅┅┅●	LOCAL STREETS (CUL-DE-SACS)	50' R.O.W.

Neighbourhood Boundary
Zoning Boundary
Staging of Development Boundary

Approvals
Planning Bd. Council
Revisions

CITY OF HAMILTON
PLANNING DEPARTMENT

QUINNDALE

PROPOSED PLAN

Fig.3

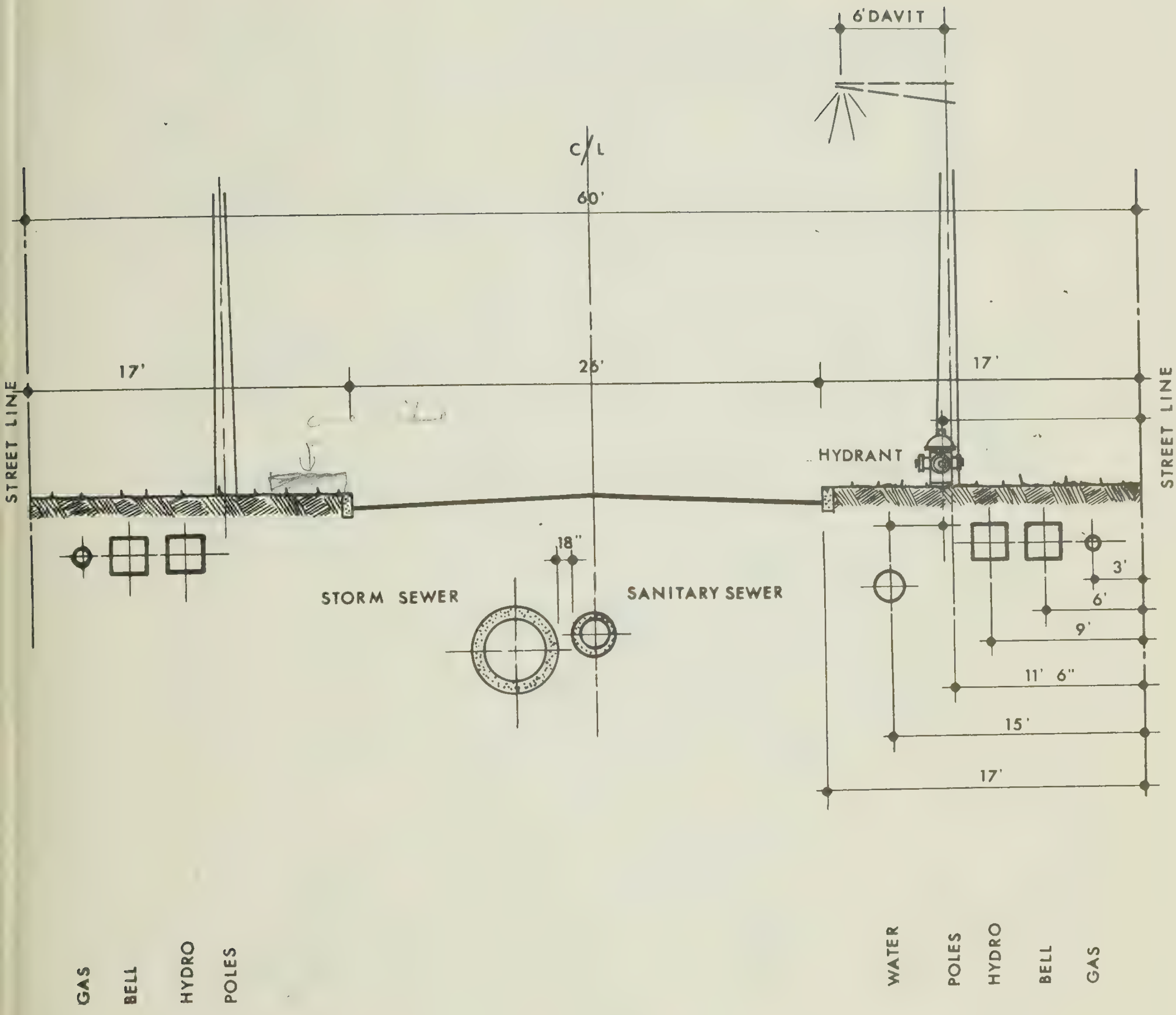


Fig.4

PROPOSED RESIDENTIAL ROAD ALLOWANCE - SECTION 60'

2. FEASIBLE ALTERNATIVES TO THE PRESENT 66 FEET RESIDENTIAL STREET RIGHTS-OF-WAY

Allowance Standard

Table 1 shows the cost reductions possible for two alternative road servicing standards. These two alternatives are described below:

(a) Alternative #1: The modified cross section of minimum road allowance width of 50 feet for 'local' cul-de-sac streets (Figure 5) consists of 24 feet wide pavement and 'mountable' curbs only. The sidewalks are not warranted because of low traffic volume and low pedestrian movements. However, sidewalks at these locations have some advantages, such as safety to children playing on the sidewalks, comfort to pedestrians, fewer disputes among neighbours. The sidewalks also prevent the hedges and bushes from being planted immediately behind the curb and hanging over the pavement. Since 24 feet wide pavement does not provide for street parking, sufficient off-street parking is required for home owners and visitors.

The minimum cul-de-sac pavement radius of 30 feet was not reduced. A smaller pavement radius would create snow removal problems and maneuvering difficulties for passanger vehicles and service vehicles. The radius of the cul-de-sac at the property line was reduced from 45 feet to 40 feet.

Modifications of servicing standards as described above would result in cost savings only for lots on cul-de-sacs. The approximate saving in servicing cost, resulting in elimination of sidewalks and reducing of pavement width, can be up to 10% of the total servicing cost of cul-de-sac lots.

(b) Alternative #2: The cross section of minimum road allowance of 50 feet for 'local' cul-de-sac streets is as indicated on Figure 5. The width of road allowance of 66 feet with cross section shown on Figure 1 was considered for 'minor collector' streets. It is required that street parking be available for 'minor collector' streets (28 feet wide pavement). The speed and volume of vehicular traffic is higher and, therefore, the vehicle-pedestrian hazard is higher than on the 'local' streets. The schools and other activity centres are normally located on these streets. The width of road allowance for 'local' streets is reduced to 60 feet. The cross section (Figure 4) consists of 26 feet wide pavement and curbs only.

By reducing the roadway standards, as proposed in this alternative, the total servicing cost for cul-de-sac lots and lots fronting on other 'local' streets would be diminished by approximately 10%. Modification of the road allowance width (from 66 feet to 60 feet) would also result in additional savings on land.

The above alternatives include a reduction in pavement depth from the existing 6 inches to a proposed depth of 3 inches. However, since an inadequate depth of pavement could increase annual maintenance costs (while decreasing initial construction costs), an evaluation of the adequacy of this reduced pavement depth should be undertaken by the City's Engineering Department before any decision is made to incorporate it in new construction.

TABLE 1

ALTERNATIVE RESIDENTIAL STREET ROADWAY STANDARDS

SERVICE ELEMENT	EXISTING REQUIREMENTS	ESTIMATED COST	ALTERNATIVE 1	COST DIFFERENCE	REMARKS	ALTERNATIVE 2	COST DIFFERENCE	REMARKS
Road Allowance	50' cul-de-sacs (underground services) 54' cul-de-sacs (overhead services 66' remaining local and minor collector streets		50' cul-de-sacs 66' remaining local and minor collector streets (28' pavement)			50' cul-de-sacs 66' minor collectors 60' remaining local streets	$3.50/ft. of lot[1]	
Pavement Width	28' all streets	$12.50/ft. of lot	24' cul-de-sacs 28' remaining streets	$1.50/ft. of lot for cul-de-sacs	no provision for parking for cul-de-sacs, creates problems with visitor's parking	24' cul-de-sacs 28' minor collector 26' local streets streets	$1.50/ft. of lot for cul-de-sacs $0.75/ft. of lot	no provision for parking for cul-de-sacs 26' pavement - one parking lane and two through lanes (9') decreased safety, efficiency and ease of operation on 9' wide through lanes.
Sidewalk and Curb	Both sides - combined walk and "barrier" curb	$8.00/ft. of lot	Mountable curb and no sidewalk on cul-de-sacs Combined walk and "barrier" curb on remaining streets	$4.50/ft. of lot for cul-de-sacs	see remarks for Alternative 2	Combined walk and "barrier" curb on minor collectors "Mountable" curb and no sidewalks on local streets	$4.50/ft. of lot for all local streets	No sidewalks - decreased safety and comfort for pedestrians; increased vehicle-pedestrian conflict. Problem with shrubs being planted just behind the curb and hanging over the pavement. "Mountable" curb - does not prevent nor discourage the vehicle from leaving the pavement, decreased safety to pedestrians.
Cul-de-sacs Diameter	90' road allowance 60' pavement		80' road allowance 60' pavement	$6.00/ft. of lot[1]	smaller pavement diameter would create snow removal problems; and manoeuvring difficulties for passenger vehicles and service vehicles	80' road allowance 60' pavement	$6.00/ft. of lot[1] at cul-de-sac end only	
Pavement Structure	6" asphalt 10" granular	$12.50/ft. of lot (28' pavement) $8.00/ft. of lot (24' pavement)	3" asphalt 10" granular	$3.00/ft. of lot (28' pavement) $4.50/ft. of lot (24' pavement)	Engineering Dept. should evaluate the reduced section with respect to its strength and maintenance requirements	3" asphalt 10" granular	$3.00/ft. of lot (28' pavement) $3.75/ft. of lot (26' pavement) $4.50/ft. of lot (24' pavement)	

NOTES: [1] Based on data from: Recommended Guidelines for Residential Servicing in Ontario, Ontario Housing Advisory Committee, December 1973, Page 41.

3. MAJOR COST ELEMENTS OF RESIDENTIAL DEVELOPMENT

The previous section described two alternatives to the City's present 66 feet road allowance standard and provided an estimate of the reduction in development costs resulting from the reduced standards. It also included alternatives relating to other roadway elements, such as pavement construction and type of curbing-elements which do not affect road allowance requirements, but which do offer some potential for reduction in develoment costs.

The purpose of this section then is to identify the major elements of housing development cost in addition to those costs directly related to the 'roadway section'.

The identification of these other cost elements and an understanding of their proportional contribution to the total housing development costs will provide a sound basis for the evaluation of alternatives for reducing housing development costs.

Housing development costs are made up of other elements besides road allowance and can be classified into the following categories:

(a) Servicing

(b) Land

(c) Housing Structure

(a) Servicing costs include those costs associated with providing streets, water, sanitary sewers, and storm sewer facilities. The costs of providing these facilities are determined by a combination of: servicing standards (part of which is the City's present requirement for a 66 feet road allowance), cost of materials and labour costs.

(b) Land cost is the cost of purchasing and holding raw land and is determined by the 'market' at the time of purchase and the property tax rate.

(c) Housing structure cost is the cost of constructing the dwelling unit and is determined by a combination of required construction standards (building code) material and labour costs.

Profit Margin, an extremely variable item having a minimum value below which private industry will not function, but also having a potentially uncontrollable upper limit, has not been isolated as a major cost element since it is contained to varying degrees in each of the other three elements. Profit margin and its affect on housing cost has been the subject of much debate. It is beyond scope of this study to make any detailed analysis of this element of housing development costs. However, in today's housing market, where there exists a surcharge of demand, cost reductions in any of the other three elements (servicing, land, house structure) are subject to dissipation through increased profits to the developer.

The above discussion, raises a number of considerations pertinent to the evaluation of alternatives for reducing housing development costs. These considerations can be listed as follows:

1. Is the alternative feasible? (Will the reduced standards create social, environmental or traffic operation problems or will it cost more in the long run due to increased maintenance costs?)

2. Does the alternative have the potential for a significant reduction in cost?

3. Will the cost savings be passed on to the home owner or merely dissipated in increased profit to the developer.

Table 2 presents an estimate of the relative proportion each of the four major elements contributing to the total housing development cost, and therefore, indicates those cost elements which have the greatest potential for significantly reducing housing development costs. It also lists a number of strategies (the feasibility of which should be determined through further study) for reducing housing development costs.

TABLE 2

SUMMARY OF STRATEGIES FOR REDUCING HOUSING DEVELOPMENT COSTS

COST ELEMENT	PERCENT OF TOTAL HOUSING DEVELOPMENT COST	STRATEGY
1. Servicing:		
a. Roads, sidewalks and curbs	2. 5%	a. Reduce pavement widths to 24 ft. and 26 ft. on 'local' streets.
b. Watermains	1. 5%	b. Eliminate sidewalks in selected areas.
c. Sanitary Sewers and Storm Sewers	4. 0%	c. Use 'Mountable' type curb.
		d. Reduce pavement thickness on local streets.
		e. Reduce size of watermains, particularly on cul-de-sacs.
		f. Reduce size and depth of cover and increase manhole spacing for sanitary and storm sewers.
		g. Utilize new materials for sanitary sewers and small watermains and service connections.
2. Charges associated with Development (interest charges, administrative charges, lawyers fee)	4. 0%	

COST ELEMENT	PERCENT OF TOTAL HOUSING DEVELOPMENT COST	STRATEGY
3. Land	35.0%	a. Increase amount of serviced land. b. Increase densities of single family zoning through 'zero lot line' concept, reduced lot widths and areas, and other methods.
4. Dwelling Construction	53.0%	a. Reduce minimum floor area requirements. b. Utilize new materials. c. New construction methods.

NOTE: Lot Levy is not included in this summary.

REFERENCES

Ontario Housing Advisory Committee, Recommended Guidelines for Residential Servicing in Ontario. December 1973.

Special Committee on Right-of-way Widths, Report to President and Members of the Executive of the City Engineer's Association

R.J. Stoltz and P. Sweet, Low Density Housing-Township of Chinguacousy. November 1971.

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